

Difference between instrumental and personal observations of sunshine.

Stations.	Apparatus.	Total possible duration for the whole month.	Personal estimated area of clear sky.	Instrumental record of sunshine.			
				Photographic.	Difference.	Thermometric.	Difference.
Bismarck, N. Dak.	P.	408.4	38	42	+4		
Helena, Mont.	P.	408.4	52	54	+2		
Portland, Oreg.*	P.	407.0	37	30	-7	30	-
Eastport, Me.	T.	405.2	44	54	+10		
Northfield, Vt.	P.	403.6	45	54	+9		
Portland, Me.	T.	403.6	40			59	+19
Rochester, N. Y.	T.	402.1	55			68	+13
Buffalo, N. Y.†	T.	402.1	37			51	+14
Boston, Mass.	T.	401.1	53			61	+7
Chicago, Ill.	P.	401.1	54	57	+14	63	+9
Cleveland, Ohio.	T.	401.1	43				
Des Moines, Iowa.	T.	401.1	39			65	+26
Detroit, Mich.	P.	401.1	52	38	+4	62	+10
Eureka, Cal.	T.	399.4	34				
New York, N. Y.	P.	399.4	49	56	+28	57	+8
Salt Lake City, Utah.	T.	399.4	28				
Colorado Springs, Colo.	P.	398.6	45	76	+20	62	+17
Denver, Colo.	T.	398.6	56				
Philadelphia, Pa.	T.	398.6	47			71	+24
Baltimore, Md.	T.	397.0	46			47	+1
Cincinnati, Ohio.	P.	397.0	56	50	+5	79	+23
Kansas City, Mo.	T.	397.0	45				
St. Louis, Mo.	P.	397.0	53	55	-4	72	+19
Washington, D. C.	P.	397.0	59	68	+8		
Dodge City, Kans.	T.	396.2	60				
Louisville, Ky.	T.	396.2	55			81	+26
San Francisco, Cal.	P.	396.2	44	84	+16	62	+18
Santa Fe, N. Mex.	T.	393.6	68				
Little Rock, Ark.	T.	392.7	37			73	+36
Atlanta, Ga.	T.	391.6	59			79	+20
Wilmington, N. C.	P.	391.6	69	84	+6	83	+14
San Diego, Cal.	P.	390.5	78	91	+11		
Phoenix, Ariz.	P.	390.5	80	72	+13		
Savannah, Ga.	T.	389.9	59				
Vicksburg, Miss.	T.	389.9	67			67	0
New Orleans, La.	P.	387.4	48	44	+9	50	+2
Galveston, Tex.	T.	386.4	35				

* Records by both methods. † Records for only 21 days, for which the total possible duration of sunshine was 285.9 hours.

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table X, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

The dates on which reports of thunderstorms for the whole country were most numerous were: 17th, 269; 20th, 204; 24th, 186; 28th, 196; 29th, 216.

Thunderstorm reports were most numerous in Illinois, 178; Iowa, 218; Minnesota, 204; Missouri, 249; Ohio, 279; Wisconsin, 180.

Thunderstorms were most frequent in: Iowa, Missouri, Nebraska, Wisconsin, 23 days; Michigan, 22; Minnesota, 20.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full

moon, viz, the 1st, and also from the 21st to the 30th, inclusive. On the remaining twenty days of this month 138 reports were received, or an average of about 7 per day. The dates on which the number of reports especially exceeded this average were: 3d, 57; 4th, 44; 21st, 39.

Auroras were reported by a large percentage of observers in: North Dakota, 89; Wisconsin, 57; Michigan, 38; Minnesota, 43.

Auroras were reported most frequently in: North Dakota, 13 days; Michigan, 11; Wisconsin, 7; Minnesota, 6.

CANADIAN REPORTS.

Thunderstorms were reported as follows: 7th, Qu'Appelle; 11th, Port Stanley, Winnipeg; 12th, Saugeen; 17th, Toronto, White River, Port Stanley, Parry Sound; 18th, Port Arthur, Charlottetown; 20th, Port Stanley; 22d, Qu'Appelle; 25th, Swift Current; 27th, Qu'Appelle, Medicine Hat; 30th, Port Stanley.

Auroras were reported as follows: 2d, Prince Albert; 3d, Rockcliffe, Port Arthur, Medicine Hat, Prince Albert; 4th, Rockcliffe, Toronto, Medicine Hat; 5th, Father Point, Port Arthur, Winnipeg, Minnedosa, Battleford; 7th, Port Arthur; 8th, Father Point, Toronto; 9th, Father Point; 10th, Battleford; 11th, Quebec, Battleford; 12th, Battleford; 17th, Battleford; 20th, Quebec; 21st, Charlottetown, Father Point, Toronto, Minnedosa, Medicine Hat, Battleford; 22d, Charlottetown, Quebec, Toronto, Port Arthur; 23d, Father Point; 24th, Quebec; 26th, Port Arthur; 28th, Quebec; 30th, Battleford.

INLAND NAVIGATION.

The extreme and average stages of water in the rivers during the current month are given in Table VIII, from which it appears that a number of rivers attained the danger line, although the flood stages were of comparatively short duration. The Tennessee reached its highest point at Chattanooga on the 5th and at Johnsonville on the 12th; the Cumberland was highest at Burnside on the 2d and at Nashville on the 7th; the Ohio was highest at Cincinnati on the 4th. As a result of these and other high waters, the Mississippi was highest at Helena on the 17th and at New Orleans on the 23d.

METEOROLOGY AND MAGNETISM.

By Prof. FRANK H. BIGELOW.

For a description of the methods of constructing the tables and curves of Chart V, see the WEATHER REVIEW for October, 1895, and January, 1896. The numbers in the columns H. and D. are added respectively to the mean values for Washington and Toronto, i. e., $H=0.18250$; $D=180.0$. The values of the vertical forces are omitted, as well as dz , s and α , which depend upon it. Stagnant eastward circulation continued during April, and summer continental conditions, with high areas on the coast and a low area in the central valleys prevailed. From the 11th to the 14th the Atlantic high was abnormally warm, causing an excess over the seasonal temperature. The solar magnetic type was inverse during the month.

CLIMATE AND CROP SERVICE.

By JAMES BERRY, Chief of Climate and Crop Service Division.

The following extracts relating to the general weather conditions in the several States and Territories are taken from the monthly reports of the respective services.

Snowfall and rainfall are expressed in inches.

Alabama.—The mean temperature was 68.3° , or 4.8° above normal; the highest was 94° , at Tuscaloosa on the 23d and 26th, and at Pineapple on the 24th, and the lowest, 30° , at Healing Springs, Pineapple, and Valleyhead on 3d. The average precipitation was 3.75, or 1.37 below normal; the greatest monthly amount, 11.30, occurred at Pushmataha

(of which amount 7.40 fell on the night of the 13th), and the least, 1.24 at Sturdevant.

Arizona.—The mean temperature was 60.3° , or 0.7° above normal; the highest was 97° , at Maricopa on the 27th, and the lowest, 8° , at Flagstaff on the 18th. The average precipitation was 0.21, or 0.27 less than normal; the greatest monthly amount was 3.00, at Pantano; no precipitation occurred at several stations.

Arkansas.—The mean temperature was 65.2° , or 2.4° above normal; the highest was 94° , at Warren on the 26th, and the lowest, 24° , at Keesees Ferry on the 2d and 3d. The average precipitation was 3.65,